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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/870,483	06/01/2001	Norimasa Okuda	04853.0072	1041

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Washington, DC 20005-3315

EXAMINER

OH, TAYLOR V

ART UNIT	PAPER NUMBER
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1623

DATE MAILED: 12/17/2001

8

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/870,483

Applicant(s)

Okuda et al

Examiner

Oh Taylor Victor

Art Unit

1623

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on Jun 1, 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above, claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are objected to by the Examiner.
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

- 13) ☒ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).
- a) ☒ All b) ☐ Some* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- *See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

- 15) ☒ Notice of References Cited (PTO-892)
- 16) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 17) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s). _____
- 18) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 19) ☐ Notice of Informal Patent Application (PTO-152)
- 20) ☐ Other:

Art Unit: 1623

Claim Rejections - 35 USC § 112

1. Claim 3 and 6 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for mineral acids such as hydrochloric acid, sulfuric acid, nitric acid, boracic acid, phosphoric acid, perchloric acid, does not reasonably provide enablement for all the mineral acids. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to consider all the mineral acids in which the invention is commensurate in scope with these claims. The invention is enabled for some of the mineral acids such as hydrochloric acid, sulfuric acid, nitric acid, boracic acid, phosphoric acid, perchloric acid, not all the mineral acids. Therefore, an appropriate correction is required.

Claim Rejections - 35 USC § 102

2113 Product-by-Process Claims in MPEP

PRODUCT-BY-PROCESS CLAIMS ARE NOT LIMITED TO THE MANIPULATION OF THE RECITED STEPS, ONLY THE STRUCTURE IMPLIED BY THE STEPS

“Even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process.” In re Thorpe, 77 F.2d 695,698,227 USPQ 964, 966 (Fed. Cir. 1985) (citations omitted) (Claim was directed to a novolac color developer. The process of making the developer was allowed. The difference between the inventive process and the prior art was the addition of metal oxide and carboxylic acid as separate ingredients instead of adding the more

Art Unit: 1623

expensive prereacted metal carboxylate. The product-by-process claim was rejected because the end product, in both the prior art and the allowed process, ends up containing metal carboxylate. The fact that the metal carboxylate is not directly added, but is instead produced in-situ does not change the end product.).

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-4, 6, 8-9, and 11-13 are rejected under 35 U.S.C. 102(b) as being anticipated clearly by Shino et al. (US. 4,694,090).

Shino et al disclose a process of making α -hydroxycarboxylic acid by hydrolyzing a cyanohydrin in the presence of a mineral acid such as hydrochloric acid and a high boiling alcohol such as glycerol, ethylene glycol (see col. 6 , lines 1-11) at room temperature or under heating; furthermore, in the process, the cyanohydrin is formed by the reaction of an aldehyde with hydrogen cyanide. And as a result of the process, the α -hydroxycarboxylic acid can be separated and recovered by the conventional method (see col. 6 , lines 1-11). For example, water is added to the reaction mixture and then the whole mixture is extracted with diethyl ether and washed with water , dried; the solvent in the reaction mixture is distilled off , and the residue is then purified by recrystallization (see col. 6 , lines 1-11), thereby obtaining the α -hydroxycarboxylic acid. Concerning the production of the optically active α -hydroxycarboxylic

Art Unit: 1623

acid, the α -hydroxycarboxylic acid is inherently an optically active compound due to the presence of chirality in the compound. These are identical with the claims.

4. Claim 10 is rejected under 35 U.S.C. 102(b) as being anticipated clearly by Flege et al (US. 4,218,380).

Flege et al disclose a 3-chloromandelic acid (see col. 3 , line 49). This is identical with the claim.

Claim Rejections - 35 USC § 103

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(f) or (g) prior art under 35 U.S.C. 103(a).

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

Art Unit: 1623

having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

7. Claims 5 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shino et al. (US. 4,694,090).

Shino et al disclose a process of making α -hydroxycarboxylic acid by hydrolyzing a cyanohydrin in the presence of a mineral acid such as hydrochloric acid or sodium hydroxide and a high boiling alcohol such as glycerol, ethylene glycol (see col. 6 , lines 1-11) at room temperature or under heating; furthermore, in the process, the cyanohydrin is formed by the reaction of an aldehyde with hydrogen cyanide. And as a result of the process, the α -hydroxycarboxylic acid can be separated and recovered by the conventional method (see col. 6 , lines 1-11). For example, water is added to the reaction mixture and then the whole mixture is extracted with diethyl ether and washed with water , dried; the solvent in the reaction mixture is distilled off , and the residue is then purified by recrystallization (see col. 6 , lines 1-11), thereby obtaining the α -hydroxycarboxylic acid. Concerning the production of the optically active α -

Art Unit: 1623

hydroxycarboxylic acid, the α -hydroxycarboxylic acid is inherently an optically active compound due to the presence of chirality in the compound.

However, Shino et al differ from the instant invention in that the amount of the organic solvent is less than 10 weight % and at most 10 equivalents of mineral acid is used relative to the cyanohydrin.

Concerning the process being conducted with a less than 10 weight % of the organic solvent, the limitation of a process with respect to ranges of pH, time, temperature, and concentration does not impart patentability to a process when such values are those which would be determined by one of ordinary skill in the art in achieving optimum operation of the process. Concentration well understood by those of ordinary skill in the art to be a result-effective variable especially when attempting to control selectivity of a chemical process.

With respect to the use of 10 equivalents of mineral acid relative to the cyanohydrin, the reference is silent. However, in the hydrolysis of hydantoin, 1-5 moles of sodium hydroxide are used per mole of hydantoin (see col. 4, lines 33-35). Furthermore, Shino et al do teach that hydrochloric acid and sodium hydroxide are equivalent to each other in the hydrolysis. Therefore, if the person having an ordinary skill in the art had desired to investigate the optimum amount range of the mineral acid relative to the cyanohydrin, it would have been obvious for the skillful artisan in the art to have obtained that claimed range from the routine experimentation on

Art Unit: 1623

the amount of mineral acid use in comparison with the amount of sodium hydroxide in the hydrolysis of hydantoin as a referential basis.

Therefore, if the person having an ordinary skill in the art had desired to optimize the reaction process by controlling the amount of the organic solvent and the amount of the mineral acid relative to the cyanohydrin, it would have been obvious for the skillful artisan in the art to have obtained that claimed amount of the mineral acid relative to the cyanohydrin as well as the optimum amount of the organic solvent from the routine experimentation .

Any inquiry concerning this communication or earlier communications from the examiner should be directed to T. Victor Oh whose telephone number is (703) 305-0809. The examiner can normally be reached on Monday through Friday from 8:30 to 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gary Geist, can be reached on (703) 308-1701. The fax phone number for the organization where this application or proceeding is assigned is (703) 308-4556.

12/07/01
TVO


GARY GEIST
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